Workshop Session on Big Data Analytics in Agriculture

Co-located with

Seventh Workshop on Big Data Benchmarking

http://clds.ucsd.edu/wbdb2015.in

December 14-15, 2015, India Habitat Centre, New Delhi, India

About the Seventh Workshop on Big Data Benchmarking (7th WBDB)

WBDB is a leading international forum for discussing and disseminating the latest trends, challenges, and ideas around Big Data benchmarking and related applications scenarios, in industry, academia and the government.

About the Workshop Session on 'Big Data Analytics in Agriculture'

Agro-produce includes Crop, Horticulture, Livestock and Fisheries. Though the relative contribution of agriculture in the Gross Domestic Products for many emerging economies is decreasing, still a large portion of population lives in the rural areas of these countries. The key challenge is not only to improve quantity and quality of production of agriculture sector, but to ensure the provision of products and services to the people living in rural areas to improve their quality of life. Agriculture is affected by various factors including soil, climate, seed, cultivation practices, irrigation facilities, fertilizers, pesticides, weeds, harvesting, post harvesting techniques, etc. Governments, Universities, Research Organizations, Agri-Business and Agro-Input companies generate, maintain and use huge amount of data related to agricultural production, weather and climate, insurance, marketing, supply chain, packaging, distribution, etc. The multi-modal nature of the data presents several challenges such as improving methods for data collection, effective and time efficient statistical and data analytical techniques to understand and support the functions of various agricultural verticals. Not only the integration and interoperability among these big data sets, but also the semantic and contextual interpretation of them is very challenging from generation of time critical and context specific information, alerts and messages. Do any barriers still exist to harnessing agricultural data to address the complexity of modeling and

simulations? How the effectiveness of various real-world applications like resource planning, allocation and mapping at macro and micro level, agro advisory systems to support a wide range of decision making from the purchase of agro-inputs to harvesting and post-harvesting mechanisms as well as practices, marketing and supply-chain of agro-produce, agricultural finance and insurance, management of farm level activities etc. be improved?

The volume, diversity, and complexity of agricultural data-sets pose interesting challenges for innovative architecture and frameworks, new techniques, algorithms, and analytics to manage it and extract value and hidden knowledge from it. It is one of the major building blocks for effective decision making for farmers, policy makers, companies involved agri-business and agro-inputs, banks, insurance companies and service providers. The aim of this workshop is to provide a discussion forum to bring together researchers (both academia and industry), professionals and practitioners to discuss the challenges related to 'Big Data Analytics in Agriculture'.

Workshop Topics

The workshop invites original research papers in areas related to 'Food and Agriculture' as listed below. Preference will be given to the papers focusing on Big Data benchmark issues related to Agriculture, including identifying reference data sets, reference workloads, performance challenges, and opportunities for application level benchmarks. Topics include but are not limited to:

- Weather Analysis and Prediction for Agriculture
- Climate Change and its Impact on Agriculture
- Cropping Patterns
- Creation of Benchmarking data-sets for Agricultural Domain
- Data Integration and Inter-operability of data generated by Sensors and Machines used by green houses and precision agriculture.
- Online Algorithms and Analytics for data generated by Sensors and Machines used by green houses and precision agriculture.
- Precision Agriculture using Big Data

- Text, Voice, Image and Video Processing for Agro-Advisory Systems:
  - Irrigation and Water Distribution
  - Pest and Disease Identification
  - Use of Fertilizers and Pesticides and its Impact
- Geo-spatial Analysis for Agriculture
- Crowdsourcing, Real Time Reporting and Inference for Agriculture
- Agriculture Finance and Crop Insurance
- Marketing, Supply Chain Management and Agri-business

Paper Submission and Publication

Prospective authors are invited to submit original research papers (not being considered for publication elsewhere) from 4 to 6 pages in length. Papers must be submitted through the CMT system. Papers should be formatted using the Springer Springer LNCS Proceedings format. Unformatted papers and papers beyond the page limit will not be reviewed. At least one author of each accepted paper is required to register at the workshop and present the paper. All submitted papers will be peer-reviewed by at least three program committee members. Accepted and presented papers will appear in the online workshop proceedings. Extended versions of selected original research papers may be invited for potential publication in a special issue of a journal. A summary of the workshop session – including a summarization of relevant papers and workshop discussion related to benchmark issues in 'Big Data Analytics for Agriculture' will be published as a separate paper in the Proceedings of Seventh Workshop on Big Data Benchmarking, by Springer Verlag in their Lecture Notes in Computer Science (LNCS) series. Selected papers from prior workshops on Big Data Benchmarking have been published in *Specifying Big Data Benchmarks*, ISBN 978-3-642-53973-2, and *Advancing Big Data Benchmarks*, ISBN: 978-3-319-10595-6.

Important Dates and Deadlines

Paper Submission   **September 28**, 2015
Paper acceptance notification   October 30, 2015
Final extended version submission   December 31, 2015
Workshop Date   December 15, 2015

Session Program Outline (Half-Day)

Welcome and Introduction	10 minutes
Invited talk	30 minutes
Selected paper presentations	80 minutes
Work-in-progress / Panel Discussion	60 minutes
(common to all co-located sessions)	

Invited Speakers

To be announced.

Workshop Co-Chairs

- **Prof. Sanjay Chaudhary**, Institute of Engineering and Technology, Ahmedabad University, India (sanjay.chaudhary@ahduni.edu.in)
- **Prof. Karmeshu**, School of Computer and Systems Sciences, Jawaharlal Nehru University, New Delhi, India (karmeshu@gmail.com)
- **Prof. Rajender Parsad**, ICAR – Indian Agricultural Statistics Research Institute, New Delhi, India (rajender1066@yahoo.co.in)

Technical Program Committee

- **Dr. Mehul Raval**, Institute of Engineering and Technology, Ahmedabad University, India
- **Dr. A. Dhandapani**, Principal Scientist, ICAR-NAARM, Rajendranagar, Hyderabad, India
- **Dr. Aditya Karnik**, Senior Scientist at GE Global Research, Bangalore
- **Dr. Rushi Bhatt**, Amazon India, Bangalore, India
- **Dr. Ratnik Gandhi**, Institute of Engineering and Technology, Ahmedabad University, India
- **Dr. Pankesh Patel**, ABB Corporate Research, Bangalore, India